WHAT IS CLAIMED IS:

1. A light-leakage type photocatalyst filter comprising:

a filter assembly including a plurality of photocatalyst fibers each of which is composed of a core portion of a photoconductor and a surface layer containing a photocatalyst and which are bundled together into a photocatalyst fiber bundle with a gap left among said photocatalyst fibers;

light introducing means for introducing the light into each of said photocatalyst fibers forming said filter assembly; and

fluid introducing means for introducing an object fluid to be processed into said filter assembly to make the fluid pass through said gap between the adjacent ones of said photocatalyst fibers in a longitudinal direction of said photocatalyst fibers.

- 2. A light-leakage type photocatalyst filter according to claim 1, further comprising a reservoir formed in front of an end face of said filter assembly.
- 3. A light-leakage type photocatalyst filter according to claim 1, wherein said photocatalyst fibers are bundled together with granular spacers interposed between every adjacent ones of said fibers.
- 4. A light-leakage type photocatalyst filter according to claim 1, wherein said filter assembly is divided by a partition wall disposed along the longitudinal direction of said photocatalyst fibers to form a plurality of filter paths and to form a cascade channel in which the object fluid successively passes through said filter paths.
- 5. A light-leakage type photocatalyst filter according to claim 1, wherein said photocatalyst fiber bundle has a dense portion and a sparse portion formed at a part and another part in the longitudinal direction where said fibers are densely and sparsely arranged, respectively, said dense portion serving as said filter assembly, said sparse portion serving as a fluid introducing

section communicating with an end face of said filter assembly.

6. A light-leakage type photocatalyst filter according to claim 1, wherein said fiber bundle forming said filter assembly is arranged so that their end faces are inclined with respect to the longitudinal direction of said fiber bundle.

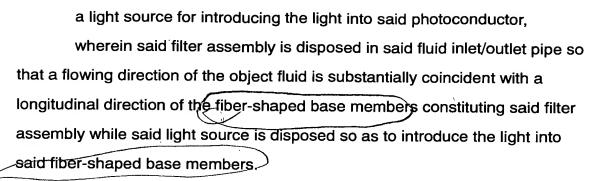
7. A light-leakage type photocatalyst filter according to claim 1, wherein a traveling direction of the object fluid within said fiber bundle forming said filter assembly is perpendicular to a light introducing direction of introducing the light into each of said photocatalyst fibers.

8. A light-leakage type photocatalist filter according to claim 1, wherein a traveling direction of the object fluid within said fiber bundle forming said filter assembly is coincident with a light introducing direction of introducing the light into each of said photocatalyst fibers.

- 9. A light-leakage type photocatalyst filter according to claim 1, further comprising a fluorescent surface on an end face of each of said photocatalyst fibers on a light introducing side to perform secondary emission.
- 10. A light-leakage type photocatalyst filter according to claim 1, further comprising an antireflection layer formed on an end face of each of said photocatalyst fibers on a light introduction side.
 - 11. A light-leakage type photocatalyst filter comprising:

a filter assembly including a plurality of photocatalyst fibers each of which is composed of a core portion of a photoconductor and a surface layer containing a photocatalyst and which are bundled together into a photocatalyst fiber bundle with a gap left between every adjacent ones of said photocatalyst fibers;

a fluid inlet/outlet pipe having inflow and outflow ports for an object fluid containing an object material to be processed by said photocatalyst; and



12. A method of filtering an object fluid into a filtered fluid by the use of a photocatalyst fiber bundle having a plurality of photocatalyst fibers extended in a longitudinal direction, comprising the steps of:

guiding light on at least one end of the photocatalyst fibers so as to make the light travel through the photocatalyst fiber in the longitudinal direction; and

allowing the object fluid to flow through the photocatalyst fiber bundle in the longitudinal direction.

- 13. A method as claimed in claim 12, wherein each of the photocatalyst fibers gradually and partially leaks the light in the longitudinal direction.
- 14. A method as claimed in claim 13, wherein the photocatalyst fibers are assembled into the photocatalyst fiber bundle with gaps which are left among the photocatalyst fibers so that the object fluid is caused to flow through the gaps in the longitudinal direction.